

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A trainable transceiver for learning signal characteristics of an RF control signal received from a remote control transmitter used to remotely actuate a device and for subsequently transmitting a modulated RF signal having the learned signal characteristics, the trainable transceiver comprising:

an antenna;

a wideband receiver coupled to the antenna, the wideband receiver configured to receive an RF control signal from the remote control transmitter; and

a control circuit coupled to the wideband receiver, the control circuit having a training mode in which the control circuit is configured to determine a device type associated with the RF control signal without first determining the frequency of transmission of the received RF control signal;

wherein the control circuit is further configured to determine and store a plurality of possible frequencies, for future transmissions of the modulated RF signal from the trainable transceiver, based on the determined device type; and

wherein the control circuit is configured to cause the transceiver to transmit new modulated RF signals based on the determined device type and the determined plurality of possible frequencies, and wherein the control circuit is configured to cause[[s]] the transmissions to be sequential and to be sequenced such that commonly used frequencies of the plurality of possible frequencies are interspersed with less commonly used frequencies, wherein the control circuit is configured to use[[s]] the sequential transmissions in the feedback-based process for determining whether a transmission has been successfully received by the device for remote actuation.

2. (Previously Presented) A trainable transceiver according to claim 1, wherein the feedback-based process comprises waiting for a user to indicate that the device for remote actuation has recently been actuated in response to one of the transmitted new RF signals.

3. (Previously Presented) A trainable transceiver according to claim 1, wherein the control circuit is further configured to identify and store a control code of the RF control signal without first determining the frequency of transmission of the received RF control signal, and wherein the control code is a fixed control code.

4. (Previously Presented) A trainable transceiver according to claim 1, wherein the control circuit is further configured to identify and store a control code of the RF control signal without first determining the frequency of transmission of the received RF control signal, and wherein the control code is an encrypted rolling code and the control circuit is further configured to identify an encryption algorithm associated with the RF control signal without first determining the frequency of transmission of the received RF control signal.

5. (Previously Presented) A trainable transceiver according to claim 1, wherein the control circuit has an operating mode in which the control circuit is further configured to retrieve the frequency and to generate the subsequent transmissions of the modulated RF signal.

6. (Previously Presented) A trainable transceiver according to claim 5, further including a transmitter coupled to the control circuit and the antenna, the transmitter configured to transmit the modulated RF signal to a remote actuate device.

7. (Previously Presented) A trainable transceiver according to claim 1, wherein the wideband receiver is a tuned wideband receiver.

8. (Previously Presented) A trainable transceiver according to claim 1, wherein the wideband receiver is an untuned wideband receiver.

9. (Previously Presented) A trainable transceiver according to claim 1, wherein the control circuit is configured to filter out the RF carrier frequency prior to determining the device type.

10. (Currently Amended) A trainable transceiver for learning signal characteristics of an RF control signal received from a remote control transmitter used to remotely actuate a device and for subsequently transmitting a modulated RF signal having the learned signal characteristics, the trainable transceiver comprising:

an antenna;

a wideband receiver coupled to the antenna, the wideband receiver configured to receive an RF control signal from the remote control transmitter without scanning for the RF control signal; and

a control circuit coupled to the wideband receiver and having a training mode configured to filter out the carrier frequency of the RF control signal and to analyze the modulation of the RF control signal to determine a device type associated with the remote control transmitter, and wherein the control circuit is configured to use the device type determination to determine a plurality of possible RF frequencies for use in subsequent transmissions by the trainable transceiver in a feedback-based process for identifying the frequency, wherein the determination of the RF frequency occurs without scanning of the receiver, and wherein the control circuit is configured to cause the transceiver to transmit new RF control signals based on the determined device type and the determined plurality of possible RF frequencies, and wherein the control circuit is configured to cause[[s]] the transmissions to be sequential and to be sequenced such that the commonly used frequencies of the plurality of possible RF frequencies are interspersed with less commonly used frequencies, wherein the control circuit is configured to use[[s]] the sequential transmissions in a feedback-based process for determining whether a transmission has been successfully received by the device for remote actuation.

11. (Previously Presented) A trainable transceiver according to claim 10, wherein the control circuit is further configured to identify and store a control code of the RF control signal, and wherein the control code is a fixed control code.

12. (Previously Presented) A trainable transceiver according to claim 10, wherein the control code is an encrypted rolling code and the control circuit is further configured to identify an encryption algorithm based on the determined device type.

13. (Previously Presented) A trainable transceiver according to claim 10, wherein the control circuit is further configured in the operating mode to retrieve a control code determined to be associated with the RF control signal and to generate an RF signal including the control code at the determined RF frequency.

14. (Original) A trainable transceiver according to claim 13, further including a transmitter coupled to the control circuit and the antenna, the transmitter configured to transmit the RF signal to a remotely actuate device.

15. (Original) A trainable transceiver according to claim 10, wherein the wideband receiver is a tuned wideband receiver.

16. (Previously Presented) A trainable transceiver according to claim 10, wherein the wideband receiver is an untuned wideband receiver.

17. (Previously Presented) A trainable transceiver according to claim 10, wherein the control circuit is further configured to generate an RF signal at each of a plurality of RF frequencies associated with the determined device type.

18. (Previously Presented) A method for training a transceiver to learn a set of signal characteristics of an RF control signal received from a remote control transmitter used to remotely actuate a device, the transceiver having an antenna and a wideband receiver, the method comprising:

- initiating a training sequence;
- receiving the RF control signal using the wideband receiver;
- determining a device type associated with the RF control signal without analyzing or determining the frequency of transmission of the received RF control signal; and
- determining a plurality of possible RF frequencies associated with the RF control signal based on the determined device type;
- conducting a feedback-based process for determining a frequency for remotely actuating the device by transmitting new RF control signals to the device and waiting for user feedback indicating a successful actuation, wherein the new RF control signal transmissions are sequential and are sequenced such that the commonly used frequencies of the determined plurality of possible RF frequencies are interspersed with less commonly used frequencies.

19. (Previously Presented) A method according to claim 18, further comprising storing the at least one RF frequency.

20. (Original) A method according to claim 18, wherein the training sequence is initiated in response to the actuation of a switch.

21. (Original) A method according to claim 18, wherein the training sequence is initiated when a signal is received by the transceiver.

22. (Original) A method according to claim 18, wherein the transceiver is mounted in a vehicle and the training sequence is initiated by a message on a vehicle bus.

23. (Previously Presented) A method according to claim 18, wherein the receiver is a tuned wideband receiver.

24. (Cancelled).

25. (Previously Presented) A trainable transceiver according to claim 1, wherein determining the frequency associated with the RF control signal comprises selecting the frequency from a pre-stored list of frequencies based on the determined device type.

26. (Previously Presented) A trainable transceiver according to claim 10, wherein determining the RF frequency comprises selecting the RF frequency from a pre-stored list of frequencies based on the determined device type.

27. (Previously Presented) A method according to claim 18, wherein determining the at least one RF frequency comprises selecting the at least one RF frequency from a pre-stored list of frequencies based on the determined device type.

28. (Previously Presented) A method according to claim 18, wherein the device type comprises a manufacturer of the device.

29. (Previously Presented) A method for training a transceiver to learn a set of signal characteristics of an RF control signal, the method comprising:

initiating a training sequence;

receiving an RF control signal from a remote control transmitter used to actuate a device, wherein a wideband receiver coupled to an antenna receives the RF control signal without scanning for the RF control signal;

identifying and storing a control code of the RF control signal;

identifying at least one data characteristics from a set of data characteristics for the RF control signal;

determining a manufacturer of the device from a pre-stored list of manufacturers based on the at least one data characteristic and without scanning for and determining the carrier frequency of the RF control signal; and

selecting a plurality of RF frequencies from a pre-stored list of frequencies based on the determined manufacturer;

conducting a feedback-based process for determining the frequency by transmitting new RF control signals having the control code, wherein the new RF control signal transmissions are sequential and are sequenced such that the commonly used frequencies of the selected RF frequencies are interspersed with less commonly used frequencies.